REMARKS

Claims 1, 3-6, 8-9 and 11-24 are currently pending. Claims 1, 3-4 and 15-16 are currently amended. Claims 20-24 are new.

Claims 1, 6, 9, and 15 were rejected under 35 U.S.C. 103(a) as being anticipated by Benjamin et al. US4,793,825. Applicants respectfully traverse the Office's rejection of Claims 1, 6, 9, and 15 under 35 U.S.C. 102(b) as being allegedly anticipated by Benjamin et al. The Office [Page 2 ¶ 3] alleges that Benjamin et al disclose a method and system for injecting a microdevice into the vascular system or encapsulated into a cell (column 15, lines 33-34). The Office [Page 2 ¶ 3] also alleges that Benjamin et al disclose the use of a microdevice, which carries circuits for signal processing. The Office [Page 2 ¶ 3] alleges that the circuits, containing silicon and phosphorus, provide output and transmitting information. Further, the Office [Page 2 ¶ 3] alleges that Benjamin et al disclose the use of white blood cells and the disclosure does not preclude the use of other cell types (column 15, lines 33-34).

With respect to claims 1, 6, 9 and 15, Applicants argue that white cells are considerably dissimilar to other types of cells. White cells engulf targets by pseudopodium formation. When a white cell engulfs a device, the device is not trapped in the white cell because the body recognizes white cells as friendly. (Column 15, lines 36-37) Nevertheless, white cells are phagocytes which seek to destroy targets engulfed by oxidative burst with enzymes such as peroxidase, lysozymes and hydrolytic enzymes. Since phagocytosis may destroy nanodevices, Applicants teach away from white cell engulfing. Applicants argue that Benjamin et al teach that "the device may be encapsulated in a cell, e.g. white cell." (Column 15, lines 33-36) Benjamin et al teach that "encapsulation may be achieved by allowing white cells to engulf the device in-vitro

and inject the resultant white cells and device." (Column 15, lines 36-37) Therefore, claims 1-2, 6-7, 9 and 15 are not anticipated by Benjamin et al.

Claims 1, 6, 9, and 15 were rejected under 35 U.S.C. 103(a) as being unpatentable over Benjamin et al. US4,793,825. Applicants respectfully traverse the Office's rejection of Claims 1, 6, 9, and 15 under 35 U.S.C. 103(a) as being allegedly unpatentable over Benjamin et al. The Office [Page 3 ¶ 1] alleges that Benjamin et al disclose a method and system for injecting a microdevice into the vascular system or encapsulating a microdevice into a cell (column 15, lines 33-34). The Office [Page 3 ¶ 1] also alleges that Benjamin et al disclose the use of a microdevice, which carries circuits for signal processing. Additionally, the Office [Page 3 ¶ 1] alleges that the circuits contain silicon and phosphorus. The Office [Page 3 ¶ 1] alleges that these circuits provide output and transmitting information. The Office [Page 3 ¶ 1] alleges that Benjamin et al disclose the use of white blood cells as merely an example and the disclosure does not preclude the use of other cell types such as red blood cells (column 15, lines 33-34). Moreover, Office [Page 3 ¶ 1] alleges that the method of Benjamin et al would be applicable to any type of cell that can be placed in viva (column 15, lines 33-34).

With respect to the obviousness rejection of claims 1, 6, 9 and 15, Applicants contend that white cells are plainly distinct from other cell types. Benjamin et al teach that "the device may be encapsulated in a cell, e.g. white cell." (Column 15, lines 33-36) Specifically, Benjamin et al teach that encapsulation by white cells through engulfing a device in-vitro. Then, the resultant white cells and device are injected. (Column 15, lines 36-37) The device is susceptible to destruction by white cells through the process of phagocytosis. Accordingly, Applicants teach away from white cell engulfing. Therefore, claims 1, 6, 9 and 15 are not obvious over Benjamin

et al.

Claim 4 was rejected under 35 U.S.C. 103(a) as being unpatentable over Benjamin et al. US4,793,825 in view of Kopelman et al. Applicants respectfully traverse the Office's rejection of Claims 4 under 35 U.S.C. 103(a) as being allegedly unpatentable over Benjamin et al in view of Kopelman et al. The Office alleges [Page 3 ¶ 2] that Kopelman discloses inserting a microdevice or nanodevice into a cell using a known particle delivery system such as a particle gun injector. The Office [Page 3 ¶ 2] alleges that Benjamin et al. disclose a method and system for injecting a microdevice into the vascular system or encapsulating a microdevice into a cell (column 15, lines 33-34). Specifically, the Office [Page 3 ¶ 2] alleges that Benjamin et al disclose the use of a microdevice, which carries circuits for processing signals, outputting information and transmitting information. The Office [Page 3 ¶ 2] alleges that the circuits contain silicon and phosphorus. The Office [Page 3 ¶ 2] alleges that Benjamin et al disclose use of white cells and the disclosure does not preclude the use of cell types other than white cells (column 15, lines 33-34). The Office [Page 3- 4, ¶ 2] alleges that it would have been obvious to modify Benjamin et al such that the means used to insert the device into a cell is a particle gun injector because the modification merely involves the selection of one well known means for inserting a device into a cell.

Applicants argue that claim 4 is not obvious over Benjamin et al in view of Kopelman et al. Kopelman et al teach pico-injection of buffered solution of fiberless sensor solid or semi solid particles. (Column 3, lines 31-34 and Column 4, lines 7-9) Benjamin et al teach encapsulation of a microdevice by white cell engulfing. (Column 15, lines 33-37) Benjamin et al do not teach or suggest encapsulation of a substrate through electroporation, microfine needle

injection or particle gun injection. Particularly, Benjamin et al discloses that a "device may be encapsulated into a cell, e.g. a white cell" and encapsulation "may be achieved by allowing white cells to engulf the device in vitro and to inject the resultant white cells and device." Secondly, Applicants invention teaches away from encapsulation in a white cell because of destruction of the device by phagocytosis.

Claims11 and 12 were rejected under 35 U.S.C. 103(a) as being unpatentable over Benjamin et al. US4,793,825 in view of Ostensen et al. Applicants respectfully traverse the Office Action's rejection of Claims 11 and 12 under 35 U.S.C. 103(a) as being allegedly unpatentable over Benjamin et al. in view of Ostensen et al. The Office [Page 4 ¶ 1] alleges that Benjamin et al disclose a method and system for injecting a microdevice into the vascular system or encapsulated a microdevice into a cell (column 15, lines 33-34). The Office [Page 4 ¶ 1] also alleges Benjamin et al disclose the use of a microdevice, which circuits for signal processing, information output and information transmission. The Office [Page 4 ¶ 1] alleges that the circuits contain silicon and phosphorus. The Office [Page 4 ¶ 1] alleges that while Benjamin et al disclose the use of white cells, the disclosure does not preclude the use of other cell types (column 15, lines 33-34). The Office [Page 4 ¶ 1] alleges that Ostensen et al disclose microparticles circulating in a body and detectable by magnetic resonance for medical diagnosis. The Office [Page 4 ¶ 1] alleges that it would have been obvious to modify Benjamin et al such that it is a resonance type nanodevice, detectable by magnetic resonance since the modification merely incorporates a well known technique for following the course of a device placed within the body.

With respect to claims 11 and 12, Applicant argues that Benjamin et al do not teach or

suggest a resonance type nanodevice or magnetic resonance detection of a device. Ostensen et al discloses administration of dispersed gas through gas containing contrast agent formulations such as microbubbles, gelatin, serum albumin, biodegradable synthetic polymer, surfactants, wall-forming material, and microporous crystalline solids. (Column 3, lines 66-67, Column 4, lines 1-33, and Column 5, lines 63-67) Such gas containing contrast agents merely enhance X-rays, light imaging, and magnetic resonance. Ostensen et al neither teaches or suggest a resonance type nanodevice or magnetic resonance detection of a nanodevice. Therefore, claims 11 and 12 are not obvious over Benjamin et al in view of Ostensen et al.

Claim 13 was rejected under 35 U.S.C. 103(a) as being unpatentable over Benjamin et al in view of Ostensen et al as applied to claim 12 above, and further in view of Chandrakumar et al. The Office [Page 4 ¶ 2] alleges that Ostensen et al disclose microparticles circulating in a body and detectable by different imaging modalities for medical diagnosis. The Office [Page 4 ¶ 2] alleges that EPR is one well known type of imaging modality. The Office [Page 4 ¶ 2] alleges that Chandrakumar et al disclose the use of EPR imaging for detecting molecules, which comprise transition metal complexes. The Office [Page 4 ¶ 2] alleges that it would have been obvious to modify Benjamin et al such that EPR is used to detect the presence of the device in the body because the modification incorporates a well-known technique for following the course of a device placed within the body.

With respect to claim 13, Applicant argues that Benjamin et al teach encapsulation of a white cell by engulfing. Applicants invention teach away from engulfing through white cells because of phagocytosis. In addition, Chandrakumar et al do not teach or suggest detecting at least one of a nanodevice and microdevice by one of electron paramagnetic resonance (EPR),

electron spin resonance (ESR) and nuclear magnetic resonance (NMR). Thus, Claim 13 is not obvious over Benjamin et al in view of Ostensen et al as applied to claim 12 above, and further in view of Chandrakumar et al.

Claim 16 was rejected under 35 U.S.C. 103(a) as being unpatentable over Benjamin et al in view of Schechter. The Office [Page 5] alleges that Schechter discloses the treatment of devices placed within a body with a compound, which improves biological function by reducing antigencity and prolonging host retention. The Office [Page 4-5 ¶ 3] alleges that Benjamin et al disclose a method and system for injecting a microdevice into the vascular system or encapsulating a microdevice into a cell (column 15, lines 33-34). The Office [Page 4-5 ¶ 3] alleges that Benjamin et al disclose the use of a microdevice, which carries circuits for signal processing, information output and information transmission. Although Benjamin et al specifically disclose the use of white blood cells, the Office [Page 4-5 ¶ 3] alleges that the disclosure does not preclude the use of other cell types (column 15, lines 33-34). The Office [Page 4-5 ¶ 3] alleges that it would have been obvious to modify Benjamin et al such that the device is treated with a material, which prolongs body retention and use.

With respect to claim 16, Applicant argues that Schechter does not teach or suggest modifying a nanodevice and microdevice to prolong vascular retention, prevent immunologic detection or prevent endocytosis. Schechter merely disclose treatment of tissue and blood vessels to diminish antigenicity. Thus, Applicants contend that claim 16 is not obvious over Benjamin in view of Schechter.

Claims 17-19 were rejected under 35 U.S.C. 103(a) as being unpatentable over Benjamin et al in view of Dustin et al or Li et al. The Office [Page 5 ¶ 1] alleges that Dustin et al disclose

the use of lipid anchors, which enable the attachment of circulating micelles to a variety of target molecules on a cell. The Office [Page 5 ¶ 1] alleges that it is well known in the art that organo hydroxyls (e.g. ethylene glycol) can be used as cross-linking molecules and modified to cause little effect on the chemistry of the molecules being linked. The Office [Page 5 ¶ 1] alleges that Li et al disclose the use of ethylene glycol as a lipid anchor to enhance the attachment of circulating microparticles. The Office [Page 5 ¶ 1] alleges that such attachment reduces clearance by the reticuloendothelial system and increases the medical effectiveness of the microparticles. The Office [Page 5 ¶ 1] alleges that Benjamin et al disclose a method and system for injecting a microdevice into the vascular system or encapsulating a microdevice into a cell (column 15, lines 33-34). The Office [Page 5 ¶ 1] alleges that Benjamin et al disclose the use of a microdevice, which carries circuits for signal processing, information output and information transmission. The Office [Page 5 ¶ 1] alleges that Benjamin et al disclose the use of white blood cells. Furthermore, the Office [Page 5 ¶ 1] alleges that the disclosure does not preclude the use of cell types other than white blood cells. (column 15, lines 33-34). The Office [Page 5 ¶ 1] alleges that it would have been obvious to modify the device of Benjamin et al, such that the device includes a lipid anchor for promoting attachment of the device to a cell, prolonging presence of the device in a body and enhancing the diagnostic or therapeutic function of the device.

With respect to claims 17-19, Dustin et al teach the binding of a micelle of an adhesion protein to target molecules on a cell surface. The micelle naturally includes a phosphatidylinositol lipid anchor. Dustin et al teach that binding of the micelle causes the T-cells not to bind with other cells. Li et al and Dustin et al do not teach or suggest attaching a

lipid anchor to a nanodevice or microdevice. Furthermore, Li et al and Dustin et al do not teach or suggest modification of nanodevice or microdevice with an organo hydroxyl. Therefore, Claims 17-19 are not obvious over Benjamin et al in view of Dustin et al or Li et al.

Applicants believe that the entire application is in condition for allowance. Should the Examiner believe that additional formalities are necessary in order to place the application in condition for allowance, or should the Examiner believe that a personal or telephone interview would be beneficial to the resolution of stated issues, he is invited to contact the Applicants' undersigned attorney at the telephone number listed below.

Respectfully submitted,

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